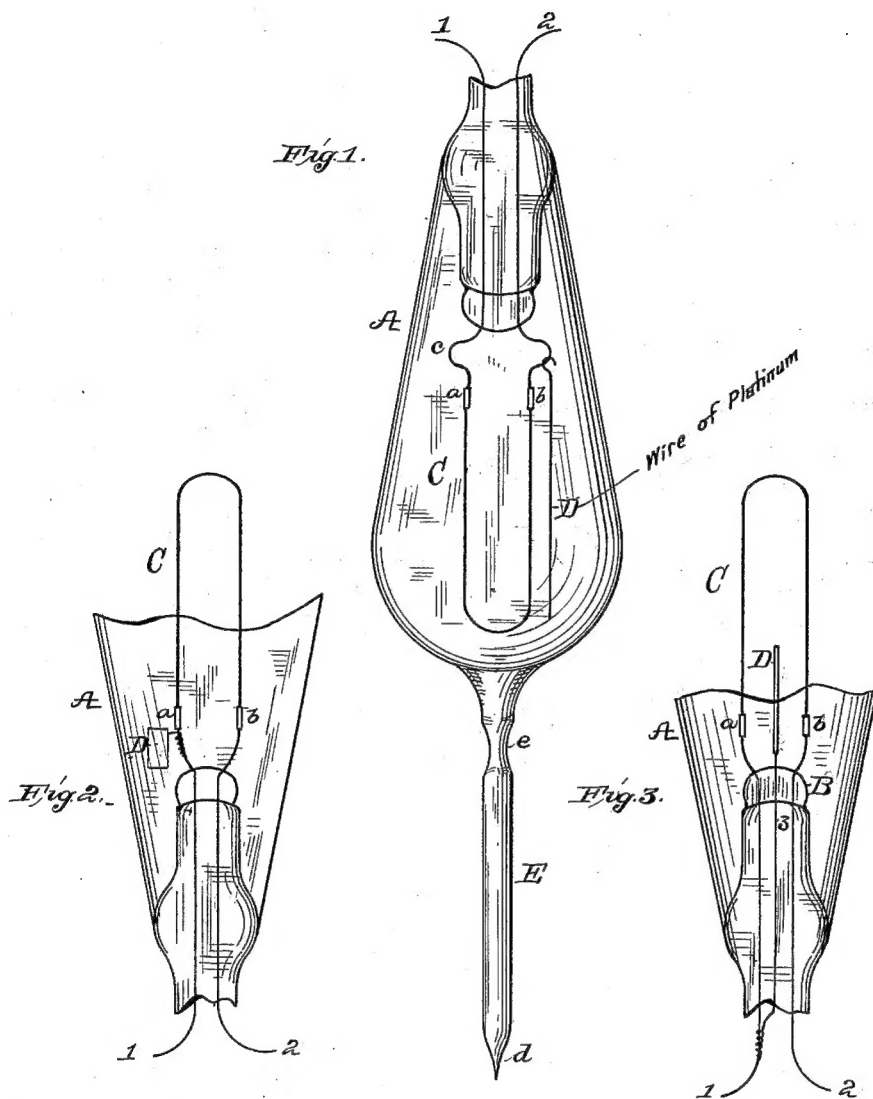


(No Model.)

T. A. EDISON.
INCANDESCENT ELECTRIC LAMP.

No. 391,596.

Patented Oct. 23, 1888.



ATTEST:

Ed. Rowland.
Paul D. Dyer.

INVENTOR:

Thomas A. Edison.
By *Rich^d A. Dyer.*
Atty.

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 391,596, dated October 23, 1888.

Application filed October 2, 1884. Serial No. 144,547. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in the Manufacture of Incandescent Electric Lamps, (Case No. 633,) of which the following is a specification.

In the process of driving the occluded gases from the incandescent conductor and clamps, which consists in heating the same by passing an electric current therethrough while the lamp is being exhausted, an electric arc frequently springs across between the metallic terminals of the incandescent conductor within the lamp, resulting in the destruction of the lamp. In the manufacture of incandescent electric lamps the arcing of the lamps on the pumps occurs frequently, and since this occurs when such lamps are nearly completed the loss from this source is considerable.

The object of my present invention is to prevent this action. I find it can be accomplished by enlarging the area of that metallic terminal within the lamp which is positive with relation to the current the lamp receives while upon the pump, and upon which the blue halo appears while driving out the occluded gases. I prefer to do this in such a manner that the enlarging part can be removably attached to the terminal, and after it has performed its office detached and removed from the lamp without destroying the vacuum; but the enlarging part may be arranged to be left within the lamp, connected with the lamp-terminal or not, as will be better understood by reference to the accompanying drawings, in which—

Figure 1 is a view of a lamp prior to final sealing, with a removable enlarging-piece attached to one terminal. Fig. 2 shows the enlarging-piece permanently attached to one terminal; and Fig. 3 shows an enlarging piece located permanently within the lamp, but adapted to be disconnected from the terminal.

The lamp-globe A is shown as having the tubular carbon and wire support B, which is usual in my lamps. The leading-in wires 1 2 terminate in metallic clamps a b, to which are connected the ends of the loop-shaped carbon filament C, these clamps and the wires within the lamp forming the metallic terminals of the

carbon filament within the lamp. The wires 1 2 (or one of them) may be bent laterally, as shown at c in Fig. 1, or they may be otherwise formed to receive the hook end of the terminal-enlarging piece D, which is preferably a wire of platinum or carbon. This is introduced through the exhaust-tube E by a suitable tool and hung upon one of the wires 1 2 at the bend c. The lamp is mounted upon the pump, the wire upon which D is hung being connected to the positive post of the heating-current circuit. After the process of exhausting the lamp and driving out the occluded gases is completed the tube E is sealed off at d. This is the condition in which the lamp is shown in Fig. 1 of the drawings. By manipulation of the lamp the wire D is shaken from its position and drops into tube E, when the lamp can be given a final sealing at e, leaving wire D in the tube E, which is detached from the lamp.

An enlarging-piece, D, may be hung upon each terminal; but since the enlarging of the negative terminal has no useful effect I prefer to enlarge the positive terminal only.

In Fig. 2 the enlarging-piece D is attached permanently to one terminal. This is made the positive terminal when the lamp is mounted on the pump for exhaustion; but afterward, in the use of the lamp, this enlarged terminal must be made the negative terminal, in order to prevent the destructive electrical carrying which I have found will occur if the lamp is used with the enlarged terminal as the positive one. Both terminals may be enlarged to the required degree to prevent arcing while upon the pump; but the enlarging of the negative terminal having no effect it is not desirable to do so.

In Fig. 3 the enlarging-piece D is not connected within the lamp to either terminal, but is mounted upon a separate wire, 3, sealed into the tubular support B. The wire 3 is connected outside the lamp with the positive wire when the lamp is mounted upon the pump, and the effect is the same as if connected to the terminal within the lamp. It forms an enlargement of the positive terminal within the lamp and prevents the springing of an electric arc, as before explained. After exhaustion of the lamp the enlarging

area D is removed, so far as its electrical effect is concerned, from the vacuum-chamber by disconnecting wire 3 from the other wire, such wire remaining disconnected from any
5 wire during the use of the lamp, it not being connected to either plate upon the lamp-base.

What I claim is—

1. The combination of the inclosing-globe, the filament, the leading-in wires, and an enlarged terminal for one end of the filament,
10 substantially as set forth.

2. The combination of the inclosing-globe, the filament, the leading-in wires, and a conducting-piece connected with one terminal of the filament, so as to enlarge the area of such
15 terminal, substantially as set forth.

This specification signed and witnessed this 24th day of September, 1884.

THOS. A. EDISON.

Witnesses:

WM. H. MEADOWCROFT,
PAUL D. DYER.